

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a **Minor, Industrial** permit. The discharge results from storm water runoff from various sources at Naval Support Facility Dahlgren. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq.

1. Facility Name and Mailing Address: Naval Support Facility Dahlgren
17483 Dahlgren Road
Dahlgren, VA 22448 SIC Code : 9711 – National Security

Facility Location: Naval Support Facility Dahlgren
17483 Dahlgren Road
Dahlgren, VA 22448 County: King George

Facility Contact Name: Brian Hornaman Telephone Number: (540) 653-2341

2. Permit No.: VA0073636 Expiration Date of previous permit: March 31, 2008

Other VPDES Permits associated with this facility: VA0021067, VAN010041

Other Permits associated with this facility: Air (PSD) – 403716400001
Hazardous Waste – VA7170024684

E2/E3/E4 Status: N/A

3. Owner Name: United States Department of the Navy
Owner Contact: Brian Hornaman Telephone Number: (540) 653-2341

4. Application Complete Date: February 4, 2008
Permit Drafted By: Susan Mackert Date Drafted: March 7, 2008
Draft Permit Reviewed By: Alison Thompson Date Reviewed: March 24, 2008
Public Comment Period : Start Date: May 1, 2008 End Date: May 30, 2008

5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination Memo

Receiving Stream: Upper Machodoc Creek
(Outfalls 002, 006)

Receiving Stream: UT to Upper Machodoc Creek
(Outfalls 003, 004, 007, 009, 013)

Receiving Stream: Black Marsh (Outfall 012) River Mile: N/A

Stream Basin: Potomac River Subbasin: Potomac River

Section: 2 Stream Class: II

Special Standards: a,b Waterbody ID: VAN-A30E

7Q10 Low Flow: Tidal 7Q10 High Flow: Tidal

1Q10 Low Flow: Tidal 1Q10 High Flow: Tidal

Harmonic Mean Flow: Tidal 30Q5 Flow: Tidal

303(d) Listed: Yes 30Q10 Flow: Tidal

TMDL Approved: Yes Date TMDL PCBs – 10/31/2007

TMDL Approved: No Date TMDL Due: DO, Macrophytes, Fecal Coliform - 2010

The receiving streams are tidal at the discharge points and as such, flow frequencies cannot be determined.

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

<input checked="" type="checkbox"/> State Water Control Law	<input type="checkbox"/> EPA Guidelines
<input checked="" type="checkbox"/> Clean Water Act	<input checked="" type="checkbox"/> Water Quality Standards
<input checked="" type="checkbox"/> VPDES Permit Regulation	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> EPA NPDES Regulation	

7. Licensed Operator Requirements: N/A

8. Reliability Class: N/A

9. Permit Characterization:

<input type="checkbox"/> Private	<input type="checkbox"/> Effluent Limited	<input checked="" type="checkbox"/> Possible Interstate Effect
<input checked="" type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input checked="" type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL		

10. Wastewater Sources and Treatment Description:

NSF Dahlgren is comprised of two separate sites: the Mainside, consisting of 2,678 acres located between Route 301 and Upper Machodoc Creek and the Explosive Experimental Area (EEA), NSF Pumpkin Neck, consisting of 1,614 acres south of Upper Machodoc Creek. Facilities on Mainside are used primarily for support (e.g., public works, supply, etc.), administration, research and development, housing, and community support activities. Mainside also contains areas used for air operations and areas where a variety of ordnance categories are tested. NSF Pumpkin Neck contains areas used for a variety of ordnance testing.

Naval Support Facility (NSF) Dahlgren and NSF Pumpkin Neck discharge industrial wastewater and storm water associated with industrial activities from several outfalls.

Outfall 002 – Main Range

This outfall is designated as an industrial process outfall. Outfall 002 receives storm water and ground water discharge from seven below grade gun mount sumps and storm water from paved areas. Two of the seven gun mounts are actively used. Water collected in the gun sumps is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump. BMPs are described in detail within the facility's SWP3. The SWP3 was provided on CD as part of the application package and is available in the permit reissuance file.

Outfall 003 – North Main Range

This outfall is designated as an industrial process outfall. Outfall 003 receives storm water and ground water discharge from one active below grade gun mount sump and storm water from paved areas. Water collected in the gun sumps is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump. BMPs are described in detail within the facility's SWP3. The SWP3 was provided on CD as part of the application package and is available in the permit reissuance file.

Outfall 004 – Cooling Pond

This outfall is designated as an industrial process outfall. The cooling pond formerly supplied non-contact cooling water to two large generators. The generators have been taken out of service and the supply and discharge lines have been severed and capped. This outfall receives storm water discharge from a large part of the developed portion of the base, including the Transportation and other Public Works areas, base housing, base administration, a small runway, labs and other technical operations. One oil-water separator located in the transportation area, two sumps located at the Ground Plane test area and one containment area storing non-PCB transformers also discharges to the pond. The pond discharges to a constructed wetland prior to discharging to a UT to Upper Machodoc Creek. BMPs are described in detail within the facility's SWP3. The SWP3 was provided on CD as part of the application package and is available in the permit reissuance file.

Outfall 006 – Yardcraft

This outfall is designated as storm water outfall associated with industrial activities. Outfall 006 receives storm water runoff from the marina area. The marina supports base river range operations. Only minor repair and maintenance is conducted on site and the boats, when not in use, are stored in a grassy area behind the marina. Three buildings and an oil-water separator was demolished in 2004. BMPs are described in detail within the facility's SWP3. The SWP3 was provided on CD as part of the application package and is available in the permit reissuance file.

Outfall 007 – Terminal Range

This outfall is designated as an industrial process outfall. Outfall 007 receives storm water runoff and ground water from one active below grade gun mount sump (#1 sump) and storm water runoff from paved areas. Three additional sumps are located adjacent to the #1 sump. The additional sumps are considered substantially similar to sump #1. Water collected in the gun sumps is pumped manually, using a bag filter capable of removing oil residue, or with a float-controlled sump pump. BMPs are described in detail within the facility's SWP3. The SWP3 was provided on CD as part of the application package and is available in the permit reissuance file.

Outfall 009 – Salt Dome and Metal Storage

This outfall is designated as storm water outfall associated with industrial activities. Outfall 009 receives storm water runoff from an exposed metal storage area and a covered salt dome facility. The exposed metal storage area includes metal from the machine shop, metal from electronic equipment, gun mounts, metal shavings and chips. BMPs are described in detail within the facility's SWP3. The SWP3 was provided on CD as part of the application package and is available in the permit reissuance file.

Outfall 012 and Outfall 013 - EEA

These outfalls are designated as storm water outfalls associated with industrial activities. Outfalls 012 and 013 receive storm water runoff from Churchill Range. This area is a relatively flat piece of land located at NSF Pumpkin Neck. The area includes the Open Burn/Open Detonation (OB/OD) Units and the area used for research, development, testing and evaluation (RDT&E). The OB/OD Units operate under RCRA Subpart X interim status for the treatment of explosive hazardous waste. BMPs are described in detail within the facility's SWP3. The SWP3 was provided on CD as part of the application package and is available in the permit reissuance file.

See Attachment 2 for the NPDES Permit Rating Worksheet.

A site map showing outfall locations and drainage areas was provided as part of the application package and is available in the permit reissuance file.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Average Flow	Outfall Latitude and Longitude
002	Storm water / Ground water	BMP	0.29 MG (over 13 rain events)	38° 19' 18" N 77° 01' 34" W
003	Storm water / Ground water	BMP	0.21 MG (over 4 rain events)	38° 19' 46" N 77° 01' 21" W
004	Storm water / Ground water	BMP	4.24 MG (over 4 rain events)	38° 19' 21" N 77° 01' 56" W
006	Storm water	BMP	Flow data not available	38° 19' 11" N 77° 02' 03" W
007	Storm water / Ground water	BMP	0.13 MG (over 4 rain events)	38° 20' 01" N 77° 01' 07" W
009	Storm water	BMP	Flow data not available	38° 19' 24" N 77° 01' 44" W
012	Storm water	BMP	Flow data not available	38° 18' 09" N 77° 01' 56" W
013	Storm water	BMP	Flow data not available	38° 18' 22" N 77° 02' 01" W
See Attachment 3 for (Dahlgren Quad, DEQ #181D) topographic maps.				

11. Sludge Treatment and Disposal Methods:

This permit covers the discharge of industrial wastewater and storm water associated with industrial activities from Naval Support Facility (NSF) Dahlgren and NSF Pumpkin Neck. This permit does not address the treatment of domestic sewage or the production of sewage sludge. The facility holds a separate permit for wastewater treatment operations (VA0021067) at Naval Support Facility (NSF) Dahlgren and NSF Pumpkin Neck.

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

TABLE 2

VA0021067	Naval Support Facility Dahlgren WWTP discharge to Upper Machodoc Creek
VA0026541	King George County Service Authority – Dahlgren Wastewater Treatment Plant discharge to Williams Creek
1AUMC004.43	Ambient water quality monitoring station upstream of outfalls on Upper Machodoc Creek

13. **Material Storage:** A list of materials stored on site is maintained by, and can be made available from, NSF Dahlgren's Environmental Office. This list is available to regulatory agencies upon request. The list provides the storage location, quantity, and Material Safety Data Sheets (MSDS) for materials stored at NSF Dahlgren. Materials include those commonly associated with vehicle maintenance and repair for light industrial activities, such as, oils, lubricants, paint, solvents, antifreeze, brake fluid, battery acid, and transmission fluid.
14. **Site Inspection:** Performed by Susan Mackert and Doug Frasier on January 17, 2008. The inspection confirms that the application package received on October 1, 2007, is accurate and representative of actual site conditions. The inspection report memo is located in the permit reissuance file.
15. **Receiving Stream Water Quality and Water Quality Standards:**

a) Ambient Water Quality Data

Available monitoring data is in the form of a VDH fish consumption advisory and shellfish consumption advisory, both including tidal portions of Upper Machodoc Creek. Similarly, the Chesapeake Bay Program has compiled data for this portion of the Potomac River for dissolved oxygen and submerged aquatic vegetation. The free-flowing unnamed tributaries and Black Marsh have not been monitored. Additionally, NRO does not have any monitoring stations downstream of the facility outfalls along Upper Machodoc Creek or the Potomac River.

The 2006 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report (IR) gives an impaired classification for the tidal portion of Upper Machodoc Creek and the Potomac River with the following impairments noted:

- A dissolved oxygen impairment for the mesohaline portion of the Potomac River.
- An aquatic plants impairment for the mesohaline portion of the Potomac River.
- A PCB fish tissue impairment for the Potomac River and its tidal tributaries, including Upper Machodoc Creek.
- Fecal coliform impairments for the shellfishing use for numerous portions of Upper Machodoc Creek.

A Total Maximum Daily Load (TMDL) for PCBs in fish tissue was approved by the U.S. EPA on October 31, 2007. Significant contributors of PCBs were given a waste load allocation in the TMDL. However, the facility was not categorized as a significant discharger and was not included in the TMDL.

The following Total Maximum Daily Load (TMDL) schedule has been established.

- Dissolved Oxygen – 2010
- Aquatic Plants (macrophytes) – 2010
- Fecal Coliform (shellfish use) – 2010

The complete planning statement is located within the permit reissuance file.

b) Receiving Stream Water Quality Criteria

Part IX of 9 VAC 25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving streams, Upper Machodoc Creek and Black Marsh, are located within Section 2 of the Potomac River Basin, and classified as a Class II water.

Class II tidal waters in the Chesapeake Bay and its tidal tributaries must meet dissolved oxygen concentrations as specified in 9 VAC 25-260-185 and maintain a pH of 6.0-9.0 standard units as specified in 9 VAC 25-260-50. In the Northern Virginia area, Class II waters must meet the Migratory Fish Spawning and Nursery Designated Use from February 1 through May 31. For the remainder of the year, these tidal waters must meet the Open Water use. The applicable dissolved oxygen concentrations are presented in Attachment 4.

Attachment 5a and Attachment 5b detail other water quality criteria applicable to the receiving stream.

Ammonia:

Ammonia is not a parameter of concern due to the fact the discharge is industrial in nature and there is no reasonable potential to exceed the ammonia criteria. Therefore, it is staff's best professional judgment that ammonia limits need not be developed for these discharges.

Metals Criteria:

Saltwater Water Quality Criteria have been established to protect aquatic organisms and can be found in Attachment 5a and Attachment 5b with the other criteria applicable to the receiving stream.

The discharges from this facility largely consist of potentially contaminated storm water runoff. The duration of these discharges generally does not exceed four days per discharge event. Discharges of this type are considered intermittent and need only to address the Acute Waste Load Allocation (WLAa). Water Quality Criteria for human health and chronic toxicity are based upon long term, continuous exposure to pollutants from effluents and are not believed to be applicable to storm water.

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving streams, Upper Machodoc Creek and Black March, are located within Section 2 of the Potomac River Basin. This section has been designated with a special standard of a and b.

The receiving stream has been designated with a special standard of "a." According to 9 VAC 25-260-310.a, Special Standard a applies to all open ocean or estuarine waters capable of propagating shellfish or in specific areas where public or leased private shellfish beds are present, including those waters on which condemnation or restriction classifications are established by the State Department of Health. The fecal coliform bacteria standard is as follows: the geometric mean fecal coliform value for a sampling station shall not exceed an MPN (Most probable number) of 14 per 100 milliliters of sample and the 90th percentile shall not exceed 43 for a 5-tube, 3-dilution or 49 for a 3-tube, 3-dilution test. The shellfish are not to be so contaminated by radionuclides, pesticides, herbicides, or fecal material that the consumption of shellfish might be hazardous. This same standard is also contained in 9 VAC 25-260-160. Fecal Coliform Bacteria; Shellfish Waters. This standard is used for the interpretation of instream monitoring data and not for setting fecal coliform effluent limitations. Special standard "a" is not applied to these discharges since the discharges are industrial in nature and there is no reasonable potential for fecal coliform to be present in the discharges.

Special Standard “b” (Potomac Embayment Standards) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9 VAC 25-415, Policy for the Potomac Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 bridge in King George County. The regulation sets effluent limits for BOD₅, total suspended solids, phosphorus, and ammonia, to protect the water quality of these high profile waterbodies. The Potomac Embayment Standards are not applied to these discharges since the discharges are industrial in nature and there is no reasonable potential for BOD₅, total suspended solids, phosphorus, and ammonia to be present in the discharges.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: Bald Eagle. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore, protect the threatened and endangered species found near the discharge.

The stream that the facility discharges to, Upper Machodoc Creek, is within a reach identified as a potential Anadromous Fish Use. Additionally, the Potomac River is identified as having an Anadromous Fish Use. It is staff's best professional judgment that the proposed limits are protective of this use.

The project review reports for each outfall are available in the permit reissuance file.

16. Antidegradation (9 VAC 25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream, Upper Machodoc Creek, has been classified as Tier 1 based on an evaluation of the receiving stream and other discharges in the vicinity. Naval Support Facility (NSF) Dahlgren also maintains a municipal wastewater treatment plant that discharges to Upper Machodoc Creek as well as the King George County Service Authority – Dahlgren. The effluent limits set forth in these two permits were developed to meet the Water Quality Standards and therefore, Upper Machodoc Creek is considered a Tier 1 water body.

The receiving stream, Black Marsh, has been classified as Tier 1 based on its being a tidal swamp fed by the Potomac River. Swamps, naturally, are expected to have dissolved oxygen (DO) concentrations below the Water Quality Standards for certain periods of time resulting in naturally occurring violations. In addition, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. These nutrient enriched conditions are impacting Black Marsh during tidal fluxes and therefore will be considered a Tier 1 water.

Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development :

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:

Effluent data obtained from the permit application and DMRs from 2005 - 2007 has been reviewed and determined to be suitable for evaluation.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The water segments receiving discharge via Outfalls 002, 003, 004, 006, 007, 009, 012 and 013 are considered to be tidal. For tidal waters, chronic wasteload allocations should be based on site specific data of waste dispersion and dilution. Where dispersion/dilution data is not available, a dilution ratio of 50:1 for chronic toxicity is usually recommended as default. Acute wasteload allocations are established by multiplying the acute water quality criteria by 2. The 2x factor is derived from the fact that the acute criteria are defined as one half of the final acute value (FAV) for a specific toxic pollutant. The term "final acute value" is defined as a cumulative probability of 0.05 for the acute toxicity values for all genera for which acceptable acute tests have been conducted with toxicants (Guidance Memo 00-2011).

d) Effluent Limitations and Monitoring, Outfalls 002, 003, 004, 006, and 007 – Conventional and Non-Conventional Pollutants

No changes to total suspended solids (TSS), and pH limitations are proposed.

TSS limitations are based on best professional judgement and Guidance Memo 00-2011.

pH limitations are set at the water quality criteria.

e) Effluent Limitations – Storm Water Only Pollutants.

VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on storm water outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria have been established at 2 times the acute criteria. These criteria are applied solely to identify those pollutants that should be given special emphasis during development of the Storm Water Pollution Prevention Plan (SWPPP). Any storm water outfall data (pollutant specific) submitted by the permittee which are above the established monitoring end-points levels requires monitoring in Part I.A. of the permit for that specific outfall and pollutant. Derivation of the decision criteria and a comparison of the monitoring end-points and effluent data for this outfall are provided in Attachment 5a and Attachment 5b. As a result, monitoring end-points and monitoring were established for Copper.

Should storm water data exceed the monitoring end point for copper (38 µg/l) the permittee shall reexamine the effectiveness of the SWPPP and any best management practices (BMPs) in use.

Outfall 002

This outfall is designated as an industrial process outfall. Outfall 002 receives storm water and ground water discharge from seven below grade gun mount sumps and storm water from paved areas. The previous permit established effluent limitations for pH and Total Petroleum Hydrocarbons (TPH) which will be carried forward with this reissuance. Limitations for pH are based on water quality criteria and technology based TPH limitations are based on DEQ Guidance Memo 96-002 as petroleum products are used and/or found within this area. Monitoring for flow and dissolved copper will be carried forward with this reissuance.

Monitoring frequencies of once per quarter (1/3M) for Flow, pH and TPH and once annually (1/Y) for dissolved copper are carried forward with this reissuance.

The facility shall address Best Management Practices, site inspections and visual monitoring for this outfall in accordance with Permit Section Part I.D (Storm Water Monitoring Requirements) and through the SWP3.

Outfall 003

This outfall is designated as an industrial process outfall. Outfall 003 receives storm water and ground water discharge from one active below grade gun mount sump and storm water from paved areas. The previous permit established effluent limitations for pH and Total Petroleum Hydrocarbons (TPH) which will be carried forward with this reissuance. Limitations for pH are based on water quality criteria and technology based TPH limitations are based on DEQ Guidance Memo 96-002 as petroleum products are used and/or found within this area. Monitoring for flow will be carried forward with this reissuance.

A monitoring frequency of once annually (1/Y) for Flow, pH and TPH is carried forward with this reissuance. The monitoring frequency was established based on the fact this outfall is substantially similar in characteristics and management to Outfall 002.

The facility shall address Best Management Practices, site inspections and visual monitoring for this outfall in accordance with Permit Section Part I.D (Storm Water Monitoring Requirements) and through the SWP3.

Outfall 004

This outfall is designated as an industrial process outfall. Outfall 004 formerly supplied non-contact cooling water to two large generators. This outfall receives storm water discharge from a large part of the developed portion of the base, including the Transportation and other Public Works areas, base housing, base administration, a small runway, labs and other technical operations. The previous permit established effluent limitations for pH and Total Petroleum Hydrocarbons (TPH) which will be carried forward with this reissuance. Limitations for pH are based on water quality criteria and technology based TPH limitations are based on DEQ Guidance Memo 96-002 as petroleum products are used and/or found within this area. Monitoring for flow will be carried forward with this reissuance.

A monitoring frequency of once per year (1/Y) for Flow, pH and TPH is proposed with this reissuance.

The facility shall address Best Management Practices, site inspections and visual monitoring for this outfall in accordance with Permit Section Part I.D (Storm Water Monitoring Requirements) and through the SWP3.

Outfall 006

This outfall is designated as storm water outfall associated with industrial activities. Outfall 006 receives storm water runoff from the marina area. The marina supports base river range operations. Only minor repair

and maintenance is conducted on site. The previous permit established effluent limitations for pH, Total Petroleum Hydrocarbons (TPH) and Total Suspended Solids (TSS) which will be carried forward with this reissuance. Limitations for pH are based on water quality criteria and technology based TPH limitations are based on DEQ Guidance Memo 96-002 as petroleum products are used and/or found within this area. Monitoring for flow and copper will be carried forward with this reissuance.

The previous permit established monitoring frequencies of once per quarter (1/3M) for Flow, pH, TPH and TSS and once annually (1/Y) for dissolved copper. The facility has requested that the quarterly monitoring requirement be reduced to annual monitoring due to the demolition of three buildings in the yardcraft area. However, in 2006 the facility had an exceedance of the TSS limit established for this outfall. Because DMR from the 2005 – 2007 time period indicates compliance, with the exception of the aforementioned TSS exceedance, monitoring will be reduced to semi-annually for Flow, pH, TPH and TSS. The previously established monitoring frequency of once annually for dissolved copper will be carried forward with this reissuance.

The facility shall address Best Management Practices, site inspections and visual monitoring for this outfall in accordance with Permit Section Part I.D (Storm Water Monitoring Requirements) and through the SWP3.

Outfall 007

This outfall is designated as an industrial process outfall. Outfall 007 receives storm water runoff and ground water from one active below grade gun mount sump (#1 sump) and storm water runoff from paved areas. Three additional sumps are located adjacent to the #1 sump. The additional sumps are considered substantially similar to sump #1. The previous permit established effluent limitations for pH and Total Petroleum Hydrocarbons (TPH) which will be carried forward with this reissuance. Limitations for pH are based on water quality criteria and technology based TPH limitations are based on DEQ Guidance Memo 96-002 as petroleum products are used and/or found within this area. Monitoring for flow will be carried forward with this reissuance.

A monitoring frequency of once annually (1/Y) for Flow, pH and TPH is carried forward with this reissuance. The monitoring frequency was established based on the fact this outfall is substantially similar in characteristics and management to Outfall 002.

The facility shall address Best Management Practices, site inspections and visual monitoring for this outfall in accordance with Permit Section Part I.D (Storm Water Monitoring Requirements) and through the SWP3.

Outfall 009

This outfall is designated as storm water outfall associated with industrial activities. Outfall 009 receives storm water runoff from an exposed metal storage area and a covered salt dome facility. The exposed metal storage area includes metal from the machine shop, metal from electronic equipment, gun mounts, metal shavings and chips.

The previous permit did not require analytical monitoring for Outfall 009, therefore, no data is available to assess the quality of the storm water runoff and its impact on the receiving stream. A comprehensive evaluation of the discharge shall be required through Attachment A for Outfall 009. This evaluation is necessary due to salt storage activities and exposed metal storage (metal from the machine shop, metal from electronic equipment, gun mounts, metal shavings and chips) in this area which provides reasonable potential for storm water contamination. Monitoring will be conducted twice during the permit cycle, during the third and fourth years of the permit, with the results submitted with the DMR package for the month in which samples were collected.

The previous permit requirement stipulating no analytical monitoring will be carried forward with this reissuance. Attachment A data shall be reviewed during the next permit reissuance process to determine if any analytical monitoring is warranted for this outfall.

The facility shall address Best Management Practices, site inspections and visual monitoring for this outfall in accordance with Permit Section Part I.D (Storm Water Monitoring Requirements) and through the SWP3.

Outfall 012

This outfall is designated as storm water outfall associated with industrial activities. Outfall 012 receives storm water runoff from Churchill Range. This area is a relatively flat piece of land located at NSF Pumpkin Neck. The area includes the Open Burn/Open Detonation (OB/OD) Units and the area used for research, development, testing and evaluation (RDT&E). The OB/OD Units operate under RCRA Subpart X interim status for the treatment of explosive hazardous waste.

During the previous reissuance, Outfall 012 was proposed and not active. Because no data was available to assess the quality of storm water runoff, the permit required Attachment A monitoring during the second, third, and fourth years of the permit. Attachment A data was submitted for two of the three years (2005 and 2006) and was reviewed as part of this reissuance process. The data indicates that the storm water discharged from Outfall 012 does not threaten the water quality of the receiving stream. As such, no additional analytical monitoring is warranted with this reissuance. Attachment A data from 2005 and 2006 is available in the permit reissuance file.

The facility shall address Best Management Practices, site inspections and visual monitoring for this outfall in accordance with Permit Section Part I.D (Storm Water Monitoring Requirements) and through the SWP3.

Outfall 013

This outfall is designated as storm water outfall associated with industrial activities. Outfall 013 receives storm water runoff from Churchill Range. This area is a relatively flat piece of land located at NSF Pumpkin Neck. The area includes the Open Burn/Open Detonation (OB/OD) Units and the area used for research, development, testing and evaluation (RDT&E). The OB/OD Units operate under RCRA Subpart X interim status for the treatment of explosive hazardous waste.

During the previous reissuance, Outfall 013 was proposed and not active. Additionally, it was determined that the discharge from Outfall 012 is representative of Outfall 013. Because no data was available to assess the quality of storm water runoff, the permit required Attachment A monitoring during the second, third, and fourth years of the permit. Attachment A data was submitted for two of the three years (2005 and 2006) and was reviewed as part of this reissuance process. Analytical monitoring for Outfall 012 was submitted as representative of Outfall 013. The data indicates that the storm water discharged from Outfall 013 does not threaten the water quality of the receiving stream. As such, no additional analytical monitoring is warranted with this reissuance. Attachment A data from 2005 and 2006 is available in the permit reissuance file.

The facility shall address Best Management Practices, site inspections and visual monitoring for this outfall in accordance with Permit Section Part I.D (Storm Water Monitoring Requirements) and through the SWP3.

f) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Total Suspended Solids, and Total Petroleum Hydrocarbons.

The limit for Total Suspended Solids is based on Best Professional Judgment and Guidance Memo 00-2011.

The limit for Total Petroleum Hydrocarbons is based on DEQ Guidance Memo 96-002.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

18. Antibalancing:

All limits in this permit are at least as stringent as those previously established. Balancing does not apply to this reissuance

19. Effluent Limitations/Monitoring Requirements: 002 – Main Range

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MG)	NA	NL	NA	NA	NL	1/3M**	Est.
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/3M**	Grab
Total Petroleum Hydrocarbons*	2	NA	NA	NA	30 mg/L	1/3M**	Grab
Copper, Dissolved	3	NL	NA	NA	NL	1/YR***	Grab
Acute Toxicity – <i>M. bahia</i> (TU _a)	2	NA	NA	NA	NL	1/5YR	Grab
Acute Toxicity – <i>C. variegatus</i> (TU _a)	2	NA	NA	NA	NL	1/5YR	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
 2. Best Professional Judgement
 3. Water Quality Standards
- MG* = Million gallons.
N/A = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
EST = Estimate.

1/3M = Once every three months.
1/YR = Once every twelve months.
1/5YR = Once every five years.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

*Total Petroleum Hydrocarbons (TPH) shall be analyzed using the Wisconsin Department of Natural Resources Modified Diesel Range Organics Method as specified in Wisconsin publication SW-141 (1995), or by EPA SW-846 Method 8015C for diesel range organics, or by EPA SW-846 Method 8270D. If Method 8270D is used, the lab must report the combination of diesel range organics and polynuclear aromatic hydrocarbons.

**The quarterly monitoring periods shall be January 1 - March 31, April 1 - June 30, July 1 - September 30 and October 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (April 10, July 10, October 10 and January 10, respectively).

*** For annual reporting, DMR shall be submitted no later than the 10th day of January following the monitoring period.

19. Effluent Limitations/Monitoring Requirements: 003 – North Main Range

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MG)	NA	NL	NA	NA	NL	1/YR**	Est.
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/YR**	Grab
Total Petroleum Hydrocarbons*	2	NA	NA	NA	30 mg/L	1/YR**	Grab

The basis for the limitations codes are:

MG = Million gallons.*1/YR* = Once every twelve months.

1. Federal Effluent Requirements

NA = Not applicable.

2. Best Professional Judgment

NL = No limit; monitor and report.

3. Water Quality Standards

S.U. = Standard units.*EST* = Estimate.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

*Total Petroleum Hydrocarbons (TPH) shall be analyzed using the Wisconsin Department of Natural Resources Modified Diesel Range Organics Method as specified in Wisconsin publication SW-141 (1995), or by EPA SW-846 Method 8015C for diesel range organics, or by EPA SW-846 Method 8270D. If Method 8270D is used, the lab must report the combination of diesel range organics and polynuclear aromatic hydrocarbons.

** For annual reporting, DMR shall be submitted no later than the 10th day of January following the monitoring period.

19. Effluent Limitations/Monitoring Requirements: 004 – Cooling Pond

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MG)	NA	NL	NA	NA	NL	1/YR**	Est.
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/YR**	Grab
Total Petroleum Hydrocarbons*	2	NA	NA	NA	30 mg/L	1/YR**	Grab

The basis for the limitations codes are:

- | | | |
|----------------------------------|---|---|
| 1. Federal Effluent Requirements | <i>MG</i> = Million gallons. | <i>I/YR</i> = Once every twelve months. |
| 2. Best Professional Judgment | <i>NA</i> = Not applicable. | |
| 3. Water Quality Standards | <i>NL</i> = No limit; monitor and report. | |
| | <i>S.U.</i> = Standard units. | |
| | <i>EST</i> = Estimate. | |

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

*Total Petroleum Hydrocarbons (TPH) shall be analyzed using the Wisconsin Department of Natural Resources Modified Diesel Range Organics Method as specified in Wisconsin publication SW-141 (1995), or by EPA SW-846 Method 8015BC for diesel range organics, or by EPA SW-846 Method 8270D. If Method 8270D is used, the lab must report the combination of diesel range organics and polynuclear aromatic hydrocarbons.

**For annual reporting, DMR shall be submitted no later than the 10th day of January following the monitoring period.

19. Effluent Limitations/Monitoring Requirements: 006 – Yard Craft

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MG)	NA	NL	NA	NA	NL	1/6M**	Est.
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/6M**	Grab
Total Petroleum Hydrocarbons*	2	NA	NA	NA	30 mg/L	1/6M**	Grab
Total Suspended Solids	2	NA	NA	NA	60 mg/L	1/6M**	Grab
Copper, Dissolved	3	NL	NA	NA	NL	1/YR***	Grab
Acute Toxicity – <i>M. bahia</i> (TU _a)	2	NA	NA	NA	NL	1/5YR	Grab
Acute Toxicity – <i>C. variegatus</i> (TU _a)	2	NA	NA	NA	NL	1/5YR	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards

MG = Million gallons.*NA* = Not applicable.*NL* = No limit; monitor and report.*S.U.* = Standard units.*EST* = Estimate.*1/6M* = Once every six months.*1/YR* = Once every twelve months.*1/5YR* = Once every five years.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

*Total Petroleum Hydrocarbons (TPH) shall be analyzed using the Wisconsin Department of Natural Resources Modified Diesel Range Organics Method as specified in Wisconsin publication SW-141 (1995), or by EPA SW-846 Method 8015C for diesel range organics, or by EPA SW-846 Method 8270D. If Method 8270D is used, the lab must report the combination of diesel range organics and polynuclear aromatic hydrocarbons.

**The semi-annual monitoring periods shall be January 1 – June 30 and July 1 – December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

*** For annual reporting, DMR shall be submitted no later than the 10th day of January following the monitoring period.

19. Effluent Limitations/Monitoring Requirements: 007 – Terminal Range

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MG)	NA	NL	NA	NA	NL	1/YR**	Est.
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/YR**	Grab
Total Petroleum Hydrocarbons*	2	NA	NA	NA	30 mg/L	1/YR**	Grab

The basis for the limitations codes are:

- | | | |
|----------------------------------|---|---|
| 1. Federal Effluent Requirements | <i>MG</i> = Million gallons. | <i>I/YR</i> = Once every twelve months. |
| 2. Best Professional Judgment | <i>NA</i> = Not applicable. | |
| 3. Water Quality Standards | <i>NL</i> = No limit; monitor and report. | |
| | <i>S.U.</i> = Standard units. | |
| | <i>EST</i> = Estimate. | |

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

*Total Petroleum Hydrocarbons (TPH) shall be analyzed using the Wisconsin Department of Natural Resources Modified Diesel Range Organics Method as specified in Wisconsin publication SW-141 (1995), or by EPA SW-846 Method 8015C for diesel range organics, or by EPA SW-846 Method 8270D. If Method 8270D is used, the lab must report the combination of diesel range organics and polynuclear aromatic hydrocarbons.

** For annual reporting, DMR shall be submitted no later than the 10th day of January following the monitoring period.

19. Effluent Limitations/Monitoring Requirements: 009 – Salt Dome and Metal Storage

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS
NA	NA	There shall be no discharge of process wastewater from this outfall.	NA

19. Effluent Limitations/Monitoring Requirements: 012 – EEA (Churchill Range)

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS
NA	NA	There shall be no discharge of process wastewater from this outfall.	NA

19. Effluent Limitations/Monitoring Requirements: 013 – EEA (Churchill Range)

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS
NA	NA	There shall be no discharge of process wastewater from this outfall.	NA

20. Other Permit Requirements :

- a) Part I.B. of the permit contains additional quantification levels and compliance reporting instructions.
9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.
- b) Permit Section Part I.C., details the requirements for Toxics Management Program.
The VPDES Permit Regulation at 9 VAC 25-31-210 requires monitoring and 9 VAC 25-31-220.I, requires limitations in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. A TMP is imposed for municipal facilities with a design rate >1.0 MGD, with an approved pretreatment program or required to develop a pretreatment program, or those determined by the Board based on effluent variability, compliance history, IWC, and receiving stream characteristics.

A review of toxicity data required by the previous permit was completed on February 19, 2008. The 48-hour static acute tests conducted for both species all yielded a LC₅₀ of greater than 100% effluent for Outfall 002 and Outfall 006. All the tests thus passed the acute toxicity criterion. These test results indicate that the effluent samples from both outfalls were not acutely toxic to the test organisms. As such, the toxicity testing requirement of once per five years (1/5Y) will be carried forward with this reissuance. Toxicity testing for both Outfall 002 and Outfall 006 shall be conducted during the third year of the permit (January 1, 2011 – December 31, 2011), with a report submission date of January 10, 2012.

- c) Permit Section Part I.D. details the requirements of the Storm Water Management Plan.
9 VAC 25-31-10 defines discharges of storm water from municipal treatment plants with design flow of 1.0 MGD or more, or plants with approved pretreatment programs, as discharges of storm water associated with industrial activity. 9 VAC 25-31-120 requires a permit for these discharges. The Pollution Prevention Plan requirements are derived from the VPDES general permit for discharges of storm water associated with industrial activity, 9 VAC 25-151-10 et seq.

21. Other Special Conditions :

- a) Materials Handling/Storage. 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorize the Board to regulate the discharge of industrial waste or other waste.
- b) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. The permittee shall submit a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO) by September 4, 2008. Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- c) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9 VAC 25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should data collected and submitted for Attachment A of the permit, indicate the need for limits to ensure protection of water quality criteria, the permit may be modified or alternately revoked and reissued to impose such water quality-based limitations.
- d) Water Quality Criteria Monitoring. State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are

maintained, the permittee is required to analyze the facility's effluent from Outfall 009 for the substances noted in Attachment A of this VPDES permit once during the third and fourth years of the permit for a total of two (2) monitoring periods. The data shall be submitted with the next application for reissuance.

- e) Notification Levels The permittee shall notify the Department as soon as they know or have reason to believe:
- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
 - (1) One hundred micrograms per liter;
 - (2) Two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter for antimony;
 - (3) Five times the maximum concentration value reported for that pollutant in the permit application; or
 - (4) The level established by the Board.
 - b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
 - (1) Five hundred micrograms per liter;
 - (2) One milligram per liter for antimony;
 - (3) Ten times the maximum concentration value reported for that pollutant in the permit application; or
 - (4) The level established by the Board.
- f) BMP If the copper concentrations at Outfall 002 and Outfall 006 exceed the monitoring end point of 19 ug/L during the annual monitoring period, a Best Management Practices (BMP) plan for the reduction of metals contamination shall be developed and submitted for staff approval within 90 days of submittal of the sampling result to DEQ. Upon approval, the BMP plan becomes an enforceable part of the permit. The permittee shall amend the BMP plan whenever there is a change in the facility or operation of the facility which materially increases the potential to discharge significant amounts of pollutants or if the BMP plan proves to be ineffective in preventing the release of significant amounts of pollutants. Changes to the BMP plan shall be submitted for staff approval within 90 days of the effective date of the changes. Upon approval, the amended BMP plan becomes an enforceable part of the permit.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

- a) Special Conditions:
1. The Storm Water reopener was removed from the permit.
 2. A TMDL reopener has been added to the permit.
 3. Water Quality Criteria Monitoring (Attachment A) has been added to the permit for Outfall 009 during the third and fourth years of the permit for a total of two (2) monitoring periods.
- b) Monitoring and Effluent Limitations:
1. Monitoring at Outfall 006 was reduced from once per quarter to semi-annually.
 2. Limits were revised to two significant figures to reflect current agency guidance.
 3. TPH methodology was added to Outfalls 002, 003, 004, 006, and 007.
 4. In the previous permit, Outfalls 003 and 007 were listed as discharging to Gambo Creek. The current application indicates Outfalls 003 and 007 both discharge to Upper Machodoc Creek. DEQ planning staff

reviewed the outfall locations confirmed that stream designations are current with this reissuance.

5. Special Standard "b" (Potomac Embayment Standards) was added to the permit per review by DEQ planning staff. The Potomac Embayment Standards are not applied to these discharges since the discharges are industrial in nature and there is no reasonable potential for BOD₅, total suspended solids, phosphorus, and ammonia to be present in the discharges. Please see Part 15.c for additional information.

24. Variances/Alternate Limits or Conditions:

None

25. Public Notice Information:

First Public Notice Date: April 30, 2008

Second Public Notice Date: May 7, 2008

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3853, sdmackert@deq.virginia.gov. See Attachment 6 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

The tidal portion of Upper Machodoc Creek and the Potomac River was given an impaired classification for PCBs in the 2006 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report (IR). A Total Maximum Daily Load (TMDL) for PCBs in fish tissue was approved by the U.S. EPA on October 31, 2007. Significant contributors of PCBs were given a waste load allocation in the TMDL. However, the facility was not categorized as a significant discharger and was not included in the TMDL.

TMDL Reopener: This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may to developed and approved for the receiving stream.

27. Additional Comments:

Previous Board Action(s): None

Staff Comments: None

Public Comment: No comments were received during the public notice.

EPA Checklist: The checklist can be found in Attachment 7.

Ellinghaus,Matthew

From: Herman,Paul
Sent: Friday, March 29, 2002 1:26 PM
To: Ellinghaus,Matthew
Subject: NSWC, Dahlgren - VA0073636

Matt,

As there have been no changes to the outfall locations for the U.S. Naval surface Warfare Center, please continue to use the flow data provided in my December 19, 1997, memo to April Young concerning the subject VPDES permit. All of the outfalls were on tidal streams or to tidal marsh. Please continue to use dilution ratios to determine the impact the discharges have on water quality.

If you have any questions or need additional data, please let me know.

Paul E. Herman, P.E.
Surface Water Investigations
Dept. of Environmental Quality
(804) 698-4464

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
NSWC Dahlgren Division - #VA0073636

TO: April Young, NRO

FROM: Paul E. Herman, P.E., WQAP

DATE: December 19, 1997

COPIES: Ron Gregory, Charles Martin, File

RECEIVED

DEC 22 1997

Northern VA. Region
Dept. of Env. Quality

The NSWC Dahlgren Division discharges via several outfalls located on Gambo Creek, Machodoc Creek, and Upper Machodoc Creek near Dahlgren, VA. Flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS Dahlgren Quadrangle topographical map which shows the receiving streams are tidal at the discharge points. The flow frequencies for tidal waterbodies cannot be determined. Dilution ratios should be used to determine the effluents effects on water quality.

If you have any questions concerning this analysis, please let me know.

NPDES PERMIT RATING WORK SHEET

VPDES NO. : VA0073636

- ☒ Regular Addition
☐ Discretionary Addition
☐ Score change, but no status Change
☐ Deletion

Facility Name: Naval Support Facility Dahlgren

City / County: Dahlgren / King George County

Receiving Water: Upper Machodoc Creek, UT to Upper Machodoc Creek and Black Marsh

Reach Number:

Is this facility a steam electric power plant (sic =4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)

2. A nuclear power Plant

3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

☐ YES; score is 700 (stop here)☒ NO; (continue)☐ Yes; score is 600 (stop here) ☒ NO; (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: Primary Sic Code: 9711 Other Sic Codes:

Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input checked="" type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	15	<input type="checkbox"/> 7.	7	35
<input type="checkbox"/> 1.	1	5	<input type="checkbox"/> 4.	4	20	<input type="checkbox"/> 8.	8	40
<input type="checkbox"/> 2.	2	10	<input type="checkbox"/> 5.	5	25	<input type="checkbox"/> 9.	9	45
			<input type="checkbox"/> 6.	6	30	<input type="checkbox"/> 10.	10	50

Code Number Checked: 0

Total Points Factor 1: 0

FACTOR 2: Flow/Stream Flow Volume (Complete either Section A or Section B; check only one)

Section A – Wastewater Flow Only considered

Wastewater Type (see Instructions)	Code	Points
Type I: Flow < 5 MGD	<input type="checkbox"/> 11	0
Flow 5 to 10 MGD	<input type="checkbox"/> 12	10
Flow > 10 to 50 MGD	<input type="checkbox"/> 13	20
Flow > 50 MGD	<input type="checkbox"/> 14	30
Type II: Flow < 1 MGD	<input type="checkbox"/> 21	10
Flow 1 to 5 MGD	<input type="checkbox"/> 22	20
Flow > 5 to 10 MGD	<input type="checkbox"/> 23	30
Flow > 10 MGD	<input type="checkbox"/> 24	50
Type III: Flow < 1 MGD	<input checked="" type="checkbox"/> 31	0
Flow 1 to 5 MGD	<input type="checkbox"/> 32	10
Flow > 5 to 10 MGD	<input type="checkbox"/> 33	20
Flow > 10 MGD	<input type="checkbox"/> 34	30

Section B – Wastewater and Stream Flow Considered

Wastewater Type (see Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow	Code	Points
Type I/III:	< 10 %	<input type="checkbox"/> 41	0
	10 % to < 50 %	<input type="checkbox"/> 42	10
	> 50%	<input type="checkbox"/> 43	20
Type II:	< 10 %	<input type="checkbox"/> 51	0
	10 % to < 50 %	<input type="checkbox"/> 52	20
	> 50 %	<input type="checkbox"/> 53	30

Code Checked from Section A or B: 31

Total Points Factor 2: 0

NPDES PERMIT RATING WORK SHEET**FACTOR 3: Conventional Pollutants**

(only when limited by the permit)

A. Oxygen Demanding Pollutants: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)

	Code	Points
<input type="checkbox"/> < 100 lbs/day	1	0
<input type="checkbox"/> 100 to 1000 lbs/day	2	5
<input type="checkbox"/> > 1000 to 3000 lbs/day	3	15
<input type="checkbox"/> > 3000 lbs/day	4	20

Code Number Checked: N/A**Points Scored:** 0

B. Total Suspended Solids (TSS)

Permit Limits: (check one)

	Code	Points
<input checked="" type="checkbox"/> < 100 lbs/day	1	0
<input type="checkbox"/> 100 to 1000 lbs/day	2	5
<input type="checkbox"/> > 1000 to 5000 lbs/day	3	15
<input type="checkbox"/> > 5000 lbs/day	4	20

Code Number Checked: 1**Points Scored:** 0C. Nitrogen Pollutants: (check one) ☐ Ammonia ☐ Other: _____

Permit Limits: (check one)

	Code	Points
<input type="checkbox"/> < 300 lbs/day	1	0
<input type="checkbox"/> 300 to 1000 lbs/day	2	5
<input type="checkbox"/> > 1000 to 3000 lbs/day	3	15
<input type="checkbox"/> > 3000 lbs/day	4	20

Code Number Checked: N/A**Points Scored:** 0**Total Points Factor 3:** 0**FACTOR 4: Public Health Impact**

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this include any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above reference supply.

☒ YES; (If yes, check toxicity potential number below)☐ NO; (If no, go to Factor 5)

Determine the *Human Health* potential from Appendix A. Use the same SIC doe and subcategory reference as in Factor 1. (Be sure to use the *Human Health* toxicity group column – check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input checked="" type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	0	<input type="checkbox"/> 7.	7	15
<input type="checkbox"/> 1.	1	0	<input type="checkbox"/> 4.	4	0	<input type="checkbox"/> 8.	8	20
<input type="checkbox"/> 2.	2	0	<input type="checkbox"/> 5.	5	5	<input type="checkbox"/> 9.	9	25
			<input type="checkbox"/> 6.	6	10	<input type="checkbox"/> 10.	10	30

Code Number Checked: 0**Total Points Factor 4:** 0

NPDES PERMIT RATING WORK SHEET

FACTOR 5: Water Quality Factors

- A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-base federal effluent guidelines, or technology-base state effluent guidelines), or has a wasteload allocation been to the discharge*

	Code	Points
<input type="checkbox"/> YES	1	10
<input checked="" type="checkbox"/> NO	2	0

- B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

	Code	Points
<input checked="" type="checkbox"/> YES	1	0
<input type="checkbox"/> NO	2	5

- C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

	Code	Points
<input type="checkbox"/> YES	1	10
<input checked="" type="checkbox"/> NO	2	0

Code Number Checked: A 2 B 1 C 2
Points Factor 5: A 0 + B 0 + C 0 = 0

FACTOR 6: Proximity to Near Coastal Waters

- A. Base Score: Enter flow code here (from factor 2) _____

Check appropriate facility HPRI code (from PCS):

HPRI#	Code	HPRI Score
<input type="checkbox"/> 1	1	20
<input type="checkbox"/> 2	2	0
<input checked="" type="checkbox"/> 3	3	30
<input type="checkbox"/> 4	4	0
<input type="checkbox"/> 5	5	20

HPRI code checked : 3

Base Score (HPRI Score): 30 X (Multiplication Factor) 0.0 = 0

Enter the multiplication factor that corresponds to the flow code: _____

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

- B. Additional Points – NEP Program

For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

Code	Points
<input checked="" type="checkbox"/> 1	10
<input type="checkbox"/> 2	0

- C. Additional Points – Great Lakes Area of Concern

For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 area's of concern (see instructions)?

Code	Points
<input type="checkbox"/> 1	10
<input checked="" type="checkbox"/> 2	0

Code Number Checked: A 3 B 1 C 2
Points Factor 6: A 0 + B 10 + C 0 = 10

NPDES PERMIT RATING WORK SHEET

SCORE SUMMARY

<u>Factor</u>	<u>Description</u>	<u>Total Points</u>
1	Toxic Pollutant Potential	0
2	Flows / Streamflow Volume	0
3	Conventional Pollutants	0
4	Public Health Impacts	0
5	Water Quality Factors	0
6	Proximity to Near Coastal Waters	10
TOTAL (Factors 1 through 6)		10

S1. Is the total score equal to or greater than 80 ☐ YES; (Facility is a Major) ☒ NO

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

☒ NO

☐ YES; (Add 500 points to the above score and provide reason below:

Reason: _____

NEW SCORE : 10

OLD SCORE : 10

Permit Reviewer's Name : Susan Mackert
Phone Number: (703) 583-3853
Date: February 25, 2008





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Scale 1 : 25,000
1" = 2080 ft



Dissolved Oxygen Criteria (9 VAC 25-260-185)

Designated Use	Criteria Concentration/Duration	Temporal Application
Migratory fish spawning and nursery	7-day mean > 6 mg/L (tidal habitats with 0-0.5 ppt salinity)	February 1 – May 31
	Instantaneous minimum > 5 mg/L	
Open-water ^{1,2}	30-day mean > 5.5 mg/L (tidal habitats with 0-0.5 ppt salinity)	Year-round
	30-day mean > 5 mg/L (tidal habitats with >0.5 ppt salinity)	
	7-day mean > 4 mg/L	
	Instantaneous minimum > 3.2 mg/L at temperatures < 29°C	
Deep-water	Instantaneous minimum > 4.3 mg/L at temperatures > 29°C	June 1-September 30
	30-day mean > 3 mg/L	
	1-day mean > 2.3 mg/L	
Deep-channel	Instantaneous minimum > 1.7 mg/L	June 1-September 30
	Instantaneous minimum > 1 mg/L	

¹See subsection aa of 9 VAC 25-260-310 for site specific seasonal open-water dissolved oxygen criteria applicable to the tidal Mattaponi and Pamunkey Rivers and their tidal tributaries.

²In applying this open-water instantaneous criterion to the Chesapeake Bay and its tidal tributaries where the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3.2 mg/L, that higher water quality for dissolved oxygen shall be provided antidegradation protection in accordance with section 30 subsection A.2 of the Water Quality Standards.

SALTWATER AND TRANSITION ZONES

WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Naval Support Facility Dahlgren
Receiving Stream: Outfall 002 - Upper Machodoc Creek

Permit No.: VA0073636

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO₃) = mg/l
90th % Temperature (Annual) = (° C)
90th % Temperature (Winter) = (° C)
90th % Maximum pH =
10th % Maximum pH =
Tier Designation (1 or 2) = 1
Early Life Stages Present Y/N = Y
Tidal Zone = 1 (1 = saltwater, 2 = transition zone)
Mean Salinity = 5.22 (g/kg)

Mixing Information

Design Flow (MGD)
Acute WLA multiplier 2
Chronic WLA multiplier 50
Human health WLA multiplier

Effluent Information

Mean Hardness (as CaCO₃) = mg/L
90 % Temperature (Annual) = (° C)
90 % Temperature (Winter) = (° C)
90 % Maximum pH = SU
10 % Maximum pH = SU
Discharge Flow = 0.29 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Acenaphthene	0	--	--	2.7E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Acrolein		--	--	7.8E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Acrylonitrile ^C		--	--	6.6E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Aldrin ^C	0	1.3E+00	--	1.4E-03	2.6E+00	--	0.0E+00	--	--	--	--	--	--	2.6E+00	--	0.0E+00
Ammonia-N (mg/l) - Annual	0	2.2E+09	3.4E+08	--	4.4E+09	1.7E+10	--	--	--	--	--	--	--	4.4E+09	1.7E+10	--
Ammonia-N (mg/l) - Winter	0	2.2E+09	3.4E+08	--	4.4E+09	1.7E+10	--	--	--	--	--	--	--	4.4E+09	1.7E+10	--
Anthracene	0	--	--	1.1E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Antimony	0	--	--	4.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Arsenic	0	6.9E+01	3.6E+01	--	1.4E+02	1.8E+03	--	--	--	--	--	--	--	1.4E+02	1.8E+03	--
Benzene ^C	0	--	--	7.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzidine ^C		--	--	5.4E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzo (a) anthracene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzo (b) fluoranthene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzo (k) fluoranthene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzo (a) pyrene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Bis(2-Chloroethyl) Ether		--	--	1.4E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Bis(2-Chloroisopropyl) Ether		--	--	1.7E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Bromoform ^C	0	--	--	3.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Butylbenzylphthalate	0	--	--	5.2E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Cadmium	0	4.0E+01	8.8E+00	--	8.0E+01	4.4E+02	--	--	--	--	--	--	--	8.0E+01	4.4E+02	--
Carbon Tetrachloride ^C	0	--	--	4.4E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Chlordane ^C	0	9.0E-02	4.0E-03	2.2E-02	1.8E-01	2.0E-01	0.0E+00	--	--	--	--	--	--	1.8E-01	2.0E-01	0.0E+00
TRC	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorine Prod. Oxidant	0	1.3E+01	7.5E+00	--	2.6E+01	3.8E+02	--	--	--	--	--	--	--	2.6E+01	3.8E+02	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Chlorobenzene		--	--	2.1E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Chlorodibromomethane ^C	0	--	--	3.4E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Chloroform ^C	0	--	--	2.9E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2-Chloronaphthalene	0	--	--	4.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2-Chlorophenol	0	--	--	4.0E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Chlorpyrifos	0	1.1E-02	5.6E-03	--	2.2E-02	2.8E-01	--	--	--	--	--	--	--	2.2E-02	2.8E-01	--
Chromium III	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium VI	0	1.1E+03	5.0E+01	--	2.2E+03	2.5E+03	--	--	--	--	--	--	--	2.2E+03	2.5E+03	--
Chrysene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Copper	0	9.3E+00	6.0E+00	--	1.9E+01	3.0E+02	--	--	--	--	--	--	--	1.9E+01	3.0E+02	--
Cyanide	0	1.0E+00	1.0E+00	2.2E+05	2.0E+00	5.0E+01	0.0E+00	--	--	--	--	--	--	2.0E+00	5.0E+01	0.0E+00
DDD ^C	0	--	--	8.4E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
DOE ^C	0	--	--	5.9E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
DDT ^C	0	1.3E-01	1.0E-03	5.9E-03	2.6E-01	5.0E-02	0.0E+00	--	--	--	--	--	--	2.6E-01	5.0E-02	0.0E+00
Demeton	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Dibenz(a,h)anthracene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dibutyl phthalate	0	--	--	1.2E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dichloromethane (Methylene Chloride) ^C	0	--	--	1.6E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-Dichlorobenzene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,3-Dichlorobenzene	0	--	--	2.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,4-Dichlorobenzene	0	--	--	2.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
3,3-Dichlorobenzidine ^C	0	--	--	7.7E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dichlorobromomethane ^C	0	--	--	4.6E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-Dichloroethane ^C	0	--	--	9.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,1-Dichloroethylene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-trans-dichloroethylene	0	--	--	1.4E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4-Dichlorophenol	0	--	--	7.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-Dichloropropane ^C	0	--	--	3.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,3-Dichloropropene	0	--	--	1.7E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dieldrin ^C	0	7.1E-01	1.9E-03	1.4E-03	1.4E+00	9.5E-02	0.0E+00	--	--	--	--	--	--	1.4E+00	9.5E-02	0.0E+00
Diethyl Phthalate	0	--	--	1.2E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Di-2-Ethylhexyl Phthalate ^C	0	--	--	5.9E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4-Dimethylphenol	0	--	--	2.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dimethyl Phthalate	0	--	--	2.9E+06	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Di-n-Butyl Phthalate	0	--	--	1.2E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4 Dinitrophenol	0	--	--	1.4E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2-Methyl-4,6-Dinitrophenol	0	--	--	7.65E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4-Dinitrotoluene ^C	0	--	--	9.1E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	1.2E-06	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-Diphenylhydrazine ^C	0	--	--	5.4E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Alpha-Endosulfan	0	3.4E-02	8.7E-03	2.4E+02	6.8E-02	4.4E-01	0.0E+00	--	--	--	--	--	--	6.8E-02	4.4E-01	0.0E+00

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Beta-Endosulfan	0	3.4E-02	8.7E-03	2.4E+02	6.8E-02	4.4E-01	0.0E+00	--	--	--	--	--	--	6.8E-02	4.4E-01	0.0E+00
Endosulfan Sulfate	0	--	--	2.4E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Endrin	0	3.7E-02	2.3E-03	8.1E-01	7.4E-02	1.2E-01	0.0E+00	--	--	--	--	--	--	7.4E-02	1.2E-01	0.0E+00
Endrin Aldehyde	0	--	--	8.1E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Ethylbenzene	0	--	--	2.9E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Fluoranthene	0	--	--	3.7E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Fluorene	0	--	--	1.4E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Guthion	0	--	1.0E-02	--	--	5.0E-01	--	--	--	--	--	--	--	--	5.0E-01	--
Heptachlor ^C	0	5.3E-02	3.6E-03	2.1E-03	1.1E-01	1.8E-01	0.0E+00	--	--	--	--	--	--	1.1E-01	1.8E-01	0.0E+00
Heptachlor Epoxide ^C	0	5.3E-02	3.6E-03	1.1E-03	1.1E-01	1.8E-01	0.0E+00	--	--	--	--	--	--	1.1E-01	1.8E-01	0.0E+00
Hexachlorobenzene ^C	0	--	--	7.7E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachlorobutadiene ^C	0	--	--	5.0E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachlorocyclohexane Alpha-BHC ^C	0	--	--	1.3E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachlorocyclohexane Beta-BHC ^C	0	--	--	4.6E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachlorocyclohexane Gamma-BHC ^C (Lindane)	0	1.6E-01	--	6.3E-01	3.2E-01	--	0.0E+00	--	--	--	--	--	--	3.2E-01	--	0.0E+00
Hexachlorocyclopentadiene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachloroethane ^C	0	--	--	8.9E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hydrogen Sulfide	0	--	2.0E+00	--	--	1.0E+02	--	--	--	--	--	--	--	--	1.0E+02	--
Indeno (1,2,3-cd) pyrene C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Isophorone ^C	0	--	--	2.6E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Kepone	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00	--
Lead	0	2.4E+02	9.3E+00	--	4.8E+02	4.7E+02	--	--	--	--	--	--	--	4.8E+02	4.7E+02	--
Malathion	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Mercury	0	1.8E+00	9.4E-01	5.1E-02	3.6E+00	4.7E+01	0.0E+00	--	--	--	--	--	--	3.6E+00	4.7E+01	0.0E+00
Methyl Bromide	0	--	--	4.0E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Methoxychlor	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
Mirex	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00	--
Monochlorobenzene	0	--	--	2.1E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Nickel	0	7.4E+01	8.2E+00	4.6E+03	1.5E+02	4.1E+02	0.0E+00	--	--	--	--	--	--	1.5E+02	4.1E+02	0.0E+00
Nitrobenzene	0	--	--	1.9E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
N-Nitrosodimethylamine ^C	0	--	--	8.1E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
N-Nitrosodiphenylamine ^C	0	--	--	1.6E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
N-Nitrosodi-n-propylamine ^C	0	--	--	1.4E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Parathion	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1016	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1221	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1232	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1242	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1248	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1254	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
PCB-1260	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB Total ^C	0	--	--	1.7E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Pentachlorophenol ^C	0	1.3E+01	7.9E+00	8.2E+01	2.6E+01	4.0E+02	0.0E+00	--	--	--	--	--	--	2.6E+01	4.0E+02	0.0E+00
Phenol	0	--	--	4.6E+06	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Phosphorus (Elemental)	0	--	0.1	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Pyrene	0	--	--	1.1E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Radionuclides (pCi/l except Beta/Photon)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity Beta and Photon Activity (mrem/yr)	0	--	--	1.5E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Strontium-90	0	--	--	4.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Tritium	0	--	--	8.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Selenium	0	--	--	2.0E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Silver	0	3.0E+02	7.1E+01	1.1E+04	6.0E+02	3.6E+03	0.0E+00	--	--	--	--	--	--	6.0E+02	3.6E+03	0.0E+00
1,1,2,2-Tetrachloroethane ^C	0	2.0E+00	--	--	4.0E+00	--	--	--	--	--	--	--	--	4.0E+00	--	--
Tetrachloroethylene ^C	0	--	--	1.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Thallium	0	--	--	8.9E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Toluene	0	--	--	6.3E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Toxaphene ^C	0	--	--	2.0E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Tributyltin	0	2.1E-01	2.0E-04	7.5E-03	4.2E-01	1.0E-02	0.0E+00	--	--	--	--	--	--	4.2E-01	1.0E-02	0.0E+00
1,2,4-Trichlorobenzene	0	3.8E-01	1.0E-03	--	7.6E-01	5.0E-02	--	--	--	--	--	--	--	7.6E-01	5.0E-02	--
1,1,2-Trichloroethane ^C	0	--	--	9.4E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Trichloroethylene ^C	0	--	--	4.2E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4,6-Trichlorophenol ^C	0	--	--	8.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Vinyl Chloride ^C	0	--	--	6.5E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Zinc	0	--	--	6.1E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
	0	9.0E+01	8.1E+01	6.9E+04	1.8E+02	4.1E+03	0.0E+00	--	--	--	--	--	--	1.8E+02	4.1E+03	0.0E+00

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. For transition zone waters, spreadsheet prints the lesser of the freshwater and saltwater water quality criteria.
6. Regular WLA = (WQC x WLA multiplier) - (WLA multiplier - 1)(background conc.)
7. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
8. Antideg. WLA = (Antideg. Baseline)(WLA multiplier) - (WLA multiplier - 1)(background conc.)

Site Specific	
<u>Metal</u>	<u>Target Value (SSTV)</u>
Antimony	0.0E+00
Arsenic III	5.5E+01
Cadmium	3.2E+01
Chromium III	#VALUE!
Chromium VI	8.8E+02
Copper	7.4E+00
Lead	1.9E+02
Mercury	0.0E+00
Nickel	0.0E+00
Selenium	0.0E+00
Silver	1.6E+00
Zinc	0.0E+00

Note: do not use QL's lower than the minimum QL's provided in agency guidance

SALTWATER AND TRANSITION ZONES

WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Naval Support Facility Dahlgren
Receiving Stream: Outfall 006 - Upper Machodoc Creek

Permit No.: VA0073636

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO₃) = mg/l
90th % Temperature (Annual) = (° C)
90th % Temperature (Winter) = (° C)
90th % Maximum pH =
10th % Maximum pH =
Tier Designation (1 or 2) = 1
Early Life Stages Present Y/N = Y
Tidal Zone = 1 (1 = saltwater, 2 = transition zone)
Mean Salinity = 5.22 (g/kg)

Mixing Information

Design Flow (MGD)
Acute WLA multiplier 2
Chronic WLA multiplier 50
Human health WLA multiplier

Effluent Information

Mean Hardness (as CaCO₃) = mg/L
90 % Temperature (Annual) = (° C)
90 % Temperature (Winter) = (° C)
90 % Maximum pH = SU
10 % Maximum pH = SU
Discharge Flow = 0.12 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Acenaphthene	0	--	--	2.7E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Acrolein		--	--	7.8E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Acrylonitrile ^C		--	--	6.6E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Aldrin ^C	0	1.3E+00	--	1.4E-03	2.6E+00	--	0.0E+00	--	--	--	--	--	--	2.6E+00	--	0.0E+00
Ammonia-N (mg/l) - Annual	0	2.2E+09	3.4E+08	--	4.4E+09	1.7E+10	--	--	--	--	--	--	--	4.4E+09	1.7E+10	--
Ammonia-N (mg/l) - Winter	0	2.2E+09	3.4E+08	--	4.4E+09	1.7E+10	--	--	--	--	--	--	--	4.4E+09	1.7E+10	--
Anthracene	0	--	--	1.1E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Antimony	0	--	--	4.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Arsenic	0	6.9E+01	3.6E+01	--	1.4E+02	1.8E+03	--	--	--	--	--	--	--	1.4E+02	1.8E+03	--
Benzene ^C	0	--	--	7.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzidine ^C		--	--	5.4E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzo (a) anthracene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzo (b) fluoranthene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzo (k) fluoranthene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Benzo (a) pyrene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Bis2-Chloroethyl Ether		--	--	1.4E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Bis2-Chloroisopropyl Ether		--	--	1.7E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Bromoform ^C	0	--	--	3.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Butylbenzylphthalate	0	--	--	5.2E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Cadmium	0	4.0E+01	8.8E+00	--	8.0E+01	4.4E+02	--	--	--	--	--	--	--	8.0E+01	4.4E+02	--
Carbon Tetrachloride ^C	0	--	--	4.4E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Chlordane ^C	0	9.0E-02	4.0E-03	2.2E-02	1.8E-01	2.0E-01	0.0E+00	--	--	--	--	--	--	1.8E-01	2.0E-01	0.0E+00
TRC	0			--			--	--	--	--	--	--	--	--	--	--
Chlorine Prod. Oxidant	0	1.3E+01	7.5E+00	--	2.6E+01	3.8E+02	--	--	--	--	--	--	--	2.6E+01	3.8E+02	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Chlorobenzene		--	--	2.1E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Chlorodibromomethane ^C	0	--	--	3.4E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Chloroform ^C	0	--	--	2.9E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2-Chloronaphthalene	0	--	--	4.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2-Chlorophenol	0	--	--	4.0E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Chlorpyrifos	0	1.1E-02	5.6E-03	--	2.2E-02	2.8E-01	--	--	--	--	--	--	--	2.2E-02	2.8E-01	--
Chromium III	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium VI	0	1.1E+03	5.0E+01	--	2.2E+03	2.5E+03	--	--	--	--	--	--	--	2.2E+03	2.5E+03	--
Chrysene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Copper	0	9.3E+00	6.0E+00	--	1.9E+01	3.0E+02	--	--	--	--	--	--	--	1.9E+01	3.0E+02	--
Cyanide	0	1.0E+00	1.0E+00	2.2E+05	2.0E+00	5.0E+01	0.0E+00	--	--	--	--	--	--	2.0E+00	5.0E+01	0.0E+00
DDD ^C	0	--	--	8.4E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
DDE ^C	0	--	--	5.9E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
DDT ^C	0	1.3E-01	1.0E-03	5.9E-03	2.6E-01	5.0E-02	0.0E+00	--	--	--	--	--	--	2.6E-01	5.0E-02	0.0E+00
Demeton	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Dibenz(a,h)anthracene ^C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dibutyl phthalate	0	--	--	1.2E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dichloromethane (Methylene Chloride) ^C	0	--	--	1.6E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-Dichlorobenzene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,3-Dichlorobenzene	0	--	--	2.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,4-Dichlorobenzene	0	--	--	2.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
3,3-Dichlorobenzidine ^C	0	--	--	7.7E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dichlorobromomethane ^C	0	--	--	4.6E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-Dichloroethane ^C	0	--	--	9.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,1-Dichloroethylene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-trans-dichloroethylene	0	--	--	1.4E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4-Dichlorophenol	0	--	--	7.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-Dichloropropane ^C	0	--	--	3.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,3-Dichloropropene	0	--	--	1.7E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dieldrin ^C	0	7.1E-01	1.9E-03	1.4E-03	1.4E+00	9.5E-02	0.0E+00	--	--	--	--	--	--	1.4E+00	9.5E-02	0.0E+00
Diethyl Phthalate	0	--	--	1.2E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Di-2-Ethylhexyl Phthalate ^C	0	--	--	5.9E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4-Dimethylphenol	0	--	--	2.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dimethyl Phthalate	0	--	--	2.9E+06	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Di-n-Butyl Phthalate	0	--	--	1.2E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4 Dinitrophenol	0	--	--	1.4E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2-Methyl-4,6-Dinitrophenol	0	--	--	7.65E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4-Dinitrotoluene ^C	0	--	--	9.1E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	1.2E-06	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
1,2-Diphenylhydrazine ^C	0	--	--	5.4E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Alpha-Endosulfan	0	3.4E-02	8.7E-03	2.4E+02	6.8E-02	4.4E-01	0.0E+00	--	--	--	--	--	--	6.8E-02	4.4E-01	0.0E+00

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Beta-Endosulfan	0	3.4E-02	8.7E-03	2.4E+02	6.8E-02	4.4E-01	0.0E+00	--	--	--	--	--	--	6.8E-02	4.4E-01	0.0E+00
Endosulfan Sulfate	0	--	--	2.4E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Endrin	0	3.7E-02	2.3E-03	8.1E-01	7.4E-02	1.2E-01	0.0E+00	--	--	--	--	--	--	7.4E-02	1.2E-01	0.0E+00
Endrin Aldehyde	0	--	--	8.1E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Ethylbenzene	0	--	--	2.9E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Fluoranthene	0	--	--	3.7E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Fluorene	0	--	--	1.4E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Guthion	0	--	1.0E-02	--	--	5.0E-01	--	--	--	--	--	--	--	--	5.0E-01	--
Heptachlor ^C	0	5.3E-02	3.6E-03	2.1E-03	1.1E-01	1.8E-01	0.0E+00	--	--	--	--	--	--	1.1E-01	1.8E-01	0.0E+00
Heptachlor Epoxide ^C	0	5.3E-02	3.6E-03	1.1E-03	1.1E-01	1.8E-01	0.0E+00	--	--	--	--	--	--	1.1E-01	1.8E-01	0.0E+00
Hexachlorobenzene ^C	0	--	--	7.7E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachlorobutadiene ^C	0	--	--	5.0E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachlorocyclohexane Alpha-BHC ^C	0	--	--	1.3E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachlorocyclohexane Beta-BHC ^C	0	--	--	4.6E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachlorocyclohexane Gamma-BHC ^C (Lindane)	0	1.6E-01	--	6.3E-01	3.2E-01	--	0.0E+00	--	--	--	--	--	--	3.2E-01	--	0.0E+00
Hexachlorocyclopentadiene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hexachloroethane ^C	0	--	--	8.9E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Hydrogen Sulfide	0	--	2.0E+00	--	--	1.0E+02	--	--	--	--	--	--	--	--	1.0E+02	--
Indeno (1,2,3-cd) pyrene C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Isophorone ^C	0	--	--	2.6E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Kepone	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00	--
Lead	0	2.4E+02	9.3E+00	--	4.8E+02	4.7E+02	--	--	--	--	--	--	--	4.8E+02	4.7E+02	--
Malathion	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Mercury	0	1.8E+00	9.4E-01	5.1E-02	3.6E+00	4.7E+01	0.0E+00	--	--	--	--	--	--	3.6E+00	4.7E+01	0.0E+00
Methyl Bromide	0	--	--	4.0E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Methoxychlor	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
Mirex	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00	--
Monochlorobenzene	0	--	--	2.1E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Nickel	0	7.4E+01	8.2E+00	4.6E+03	1.5E+02	4.1E+02	0.0E+00	--	--	--	--	--	--	1.5E+02	4.1E+02	0.0E+00
Nitrobenzene	0	--	--	1.9E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
N-Nitrosodimethylamine ^C	0	--	--	8.1E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
N-Nitrosodiphenylamine ^C	0	--	--	1.6E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
N-Nitrosodi-n-propylamine ^C	0	--	--	1.4E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Parathion	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1016	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1221	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1232	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1242	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1248	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB-1254	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
PCB-1260	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
PCB Total ^C	0	--	--	1.7E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Pentachlorophenol ^C	0	1.3E+01	7.9E+00	8.2E+01	2.6E+01	4.0E+02	0.0E+00	--	--	--	--	--	--	2.6E+01	4.0E+02	0.0E+00
Phenol	0	--	--	4.6E+06	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Phosphorus (Elemental)	0	--	0.1	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Pyrene	0	--	--	1.1E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Radionuclides (pCi/l except Beta/Photon)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity Beta and Photon Activity (mrem/yr)	0	--	--	1.5E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Strontium-90	0	--	--	4.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Tritium	0	--	--	8.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Selenium	0	--	--	2.0E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Silver	0	3.0E+02	7.1E+01	1.1E+04	6.0E+02	3.6E+03	0.0E+00	--	--	--	--	--	--	6.0E+02	3.6E+03	0.0E+00
1,1,2,2-Tetrachloroethane ^C	0	2.0E+00	--	--	4.0E+00	--	--	--	--	--	--	--	--	4.0E+00	--	--
Tetrachloroethylene ^C	0	--	--	1.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Thallium	0	--	--	8.9E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Toluene	0	--	--	6.3E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Toxaphene ^C	0	--	--	2.0E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Tributyltin	0	2.1E-01	2.0E-04	7.5E-03	4.2E-01	1.0E-02	0.0E+00	--	--	--	--	--	--	4.2E-01	1.0E-02	0.0E+00
1,2,4-Trichlorobenzene	0	3.8E-01	1.0E-03	--	7.6E-01	5.0E-02	--	--	--	--	--	--	--	7.6E-01	5.0E-02	--
1,1,2-Trichloroethane ^C	0	--	--	9.4E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Trichloroethylene ^C	0	--	--	4.2E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
2,4,6-Trichlorophenol ^C	0	--	--	8.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Vinyl Chloride ^C	0	--	--	6.5E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
Zinc	0	--	--	6.1E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00
	0	9.0E+01	8.1E+01	6.9E+04	1.8E+02	4.1E+03	0.0E+00	--	--	--	--	--	--	1.8E+02	4.1E+03	0.0E+00

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. For transition zone waters, spreadsheet prints the lesser of the freshwater and saltwater water quality criteria.
6. Regular WLA = (WQC x WLA multiplier) - (WLA multiplier - 1)(background conc.)
7. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
8. Antideg. WLA = (Antideg. Baseline)(WLA multiplier) - (WLA multiplier - 1)(background conc.)

Metal	Site Specific	
	Target Value (SSTV)	
Antimony	0.0E+00	
Arsenic III	5.5E+01	
Cadmium	3.2E+01	
Chromium III	#VALUE!	
Chromium VI	8.8E+02	
Copper	7.4E+00	
Lead	1.9E+02	
Mercury	0.0E+00	
Nickel	0.0E+00	
Selenium	0.0E+00	
Silver	1.6E+00	
Zinc	0.0E+00	

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Citizens may comment on the proposed reissuance of a permit that allows the release of storm water into a water body in King George County, Virginia.

PUBLIC COMMENT PERIOD: May 1, 2008 to 5:00 p.m. on May 30, 2008

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Industrial

Owners or operators of industrial facilities that discharge or propose to discharge storm water into the streams, rivers or bays of Virginia from a point source must apply for this permit. In general, point sources are fixed sources of pollution such as pipes, ditches or channels. The applicant must submit the application to the Department of Environmental Quality, under the authority of the State Water Control Board.

PURPOSE OF NOTICE: To invite the public to comment on the draft permit.

NAME, ADDRESS AND PERMIT NUMBER OF APPLICANT: United States Department of the Navy
17483 Dahlgren Road, Dahlgren, VA 22448
VA0073636

NAME AND ADDRESS OF FACILITY: Naval Support Facility Dahlgren
17483 Dahlgren Road, Dahlgren, VA 22448

PROJECT DESCRIPTION: The United States Department of the Navy has applied for a reissuance of a permit for Naval Support Facility Dahlgren in King George County, Virginia. The applicant proposes to release storm water at a maximum rate of 4.24 Million Gallons per Day into Upper Machodoc Creek and Black Marsh in King George County that is in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, Total Suspended Solids and Total Petroleum Hydrocarbons. Acute toxicity will also be monitored using *Mysidopsis bahia* and *Cyprinodon variegatus*.

HOW A DECISION IS MADE: After public comments have been considered and addressed by the permit or other means, DEQ will make the final decision unless there is a public hearing. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the proposed permit. If there is a public hearing, the State Water Control Board will make the final decision.

HOW TO COMMENT: DEQ accepts comments by e-mail, fax or postal mail. All comments must be in writing and be received by DEQ during the comment period. The public also may request a public hearing.

WRITTEN COMMENTS MUST INCLUDE:

1. The names, mailing addresses and telephone numbers of the person commenting and of all people represented by the citizen.
2. If a public hearing is requested, the reason for holding a hearing, including associated concerns.
3. A brief, informal statement regarding the extent of the interest of the person commenting, including how the operation of the facility or activity affects the citizen.

TO REVIEW THE DRAFT PERMIT AND APPLICATION: The public may review the documents at the DEQ-Northern Regional Office every work day by appointment.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:

Name: Susan Mackert

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3853 E-mail: sdmackert@deq.virginia.gov Fax: (703) 583-3841

**State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review**

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Naval Support Facility Dahlgren
NPDES Permit Number:	VA0073636
Permit Writer Name:	Susan Mackert
Date:	March 4, 2008

Major ☐Minor ☒Industrial ☒Municipal ☐**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?		X	
8. Whole Effluent Toxicity Test summary and analysis?	X		
9. Permit Rating Sheet for new or modified industrial facilities?	X		

I.B. Permit/Facility Characteristics

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?	X		
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?		X	
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?	X		

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Review Checklist – For Non-Municipals (To be completed and included in the record for all non-POTWs)

II.A. Permit Cover Page/Administration

	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements

	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ)

	Yes	No	N/A
1. Is the facility subject to a national effluent limitations guideline (ELG)?		X	
a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?			X
b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?	X		
2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?	X		
3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?	X		
4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a “reasonable measure of ACTUAL production” for the facility (not design)?			X
5. Does the permit contain “tiered” limits that reflect projected increases in production or flow?		X	
a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?			X
6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?	X		
7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?	X		
8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?		X	

II.D. Water Quality-Based Effluent Limits

	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?		X	
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			X

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)?	X		
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the fact sheet indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

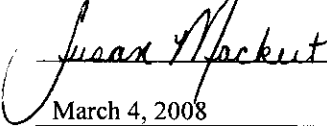
II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State’s standard practices?	X		

II.F. Special Conditions	Yes	No	N/A
1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?	X		
a. If yes, does the permit adequately incorporate and require compliance with the BMPs?	X		
2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		

II.G. Standard Conditions	Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		
List of Standard Conditions – 40 CFR 122.41			
Duty to comply	Property rights	Reporting Requirements	
Duty to reapply	Duty to provide information	Planned change	
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance	
not a defense	Monitoring and records	Transfers	
Duty to mitigate	Signatory requirement	Monitoring reports	
Proper O & M	Bypass	Compliance schedules	
Permit actions	Upset	24-Hour reporting	
		Other non-compliance	
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]?			

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Susan Mackert</u>
Title	<u>Environmental Specialist II</u>
Signature	<u></u>
Date	<u>March 4, 2008</u>